Please type a plus sign (+) inside this box → +

HDP/SB/21 based on PTO/SB/21 (08-00)

AF 2666 & IFW

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/349,521
Filing Date	July 8, 1999
Inventor(s)	Hong JIANG
Group Art Unit	2666
Examiner Name	Dang T. Ton
Attorney Docket Number	29250-002166/US

ENCLOSURES *(check all that apply)*

- ☒ Fee Transmittal Form
  - ☒ Fee Attached
- ☐ Amendment
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Assignment Papers *(for an Application)*
- ☐ Letter to the Official Draftsperson and _____ Sheets of Formal Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☒ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ After Allowance Communication to Group
- ☐ LETTER SUBMITTING APPEAL BRIEF AND APPEAL BRIEF (w/clean version of pending claims)
- ☒ Appeal Communication to Group *(Notice of Appeal, **Brief**, Reply Brief)*
- ☐ Proprietary Information
- ☐ Status Letter
- ☐ Other Enclosure(s) *(please identify below)*:

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm *or* Individual name	Harness, Dickey & Pierce, P.L.C.	Attorney Name John E. Curtin	Reg. No. 37,602
Signature			
Date	July 29, 2005		

PTO/SB/17 (12-04)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2005

Effective 10/01/2004. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 500

Complete if Known	
Application Number	29250-002166/US
Filing Date	July 8, 1999
First Named Inventor	Hong JIANG
Examiner Name	Dang T. Ton
Art Unit	2666
Attorney Docket No.	29250-002166/US

METHOD OF PAYMENT *(check all that apply)*

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number: 08-0750

Deposit Account Name: Harness, Dickey & Pierce, PLC

The Director is authorized to: *(check all that apply)*
☐ Charge fee(s) indicated below ☐ Credit any overpayments
☐ Charge any additional fee(s) during the pendency of this application
☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1011	300	2011	150	Utility filing fee	
1012	200	2012	100	Design filing fee	
1013	200	2013	100	Plant filing fee	
1014	300	2014	150	Reissue filing fee	
1005	200	2005	100	Provisional filing fee	

SUBTOTAL (1) ($) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

			Extra Claims		Fee from below		Fee Paid
Total Claims		-20 ** =	0	X		=	0
Independent Claims		-3 ** =	0	X		=	0
Multiple Dependent						=	0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	50	2202	25	Claims in excess of 20
1201	200	2201	100	Independent claims in excess of 3
1203	360	2203	180	Multiple dependent claim, if not paid
1204	200	2204	100	** Reissue independent claims over original patent
1205	50	2205	25	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	120	2251	60	Extension for reply within first month	
1252	450	2252	225	Extension for reply within second month	
1253	1020	2253	510	Extension for reply within third month	
1254	1,590	2254	795	Extension for reply within fourth month	
1255	2,160	2255	1080	Extension for reply within fifth month	
1401	500	2401	250	Notice of Appeal	
1402	500	2402	250	Filing a brief in support of an appeal	500
1403	1000	2403	500	Request for oral hearing	
1452	500	2452	250	Petition to revive – unavoidable	
1453	1500	2453	750	Petition to revive – unintentional	
1501	1400	2501	700	Utility issue fee (or reissue)	
1502	800	2502	400	Design issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	
Other fee (specify) ____					

*Reduced by Basic Filing Fee Paid SUBTOTAL (3) ($)500

4. SEARCH/EXAMINATION FEES

1111	500	2111	250	Utility Search Fee	
1112	100	2112	50	Design Search Fee	
1113	300	2113	150	Plant Search Fee	
1114	500	2114	250	Reissue Search Fee	
1311	200	2311	100	Utility Examination Fee	
1312	130	2312	65	Design Examination Fee	
1313	160	2313	80	Plant Examination Fee	
1314	600	2314	300	Reissue Examination Fee	

SUBTOTAL (4) ($)0

SUBMITTED BY

Complete *(if applicable)*

Name (Print/Type)	John E. Curtin	*Registration No. (Attorney/Agent)*	37,602	*Telephone*	(703) 668-8000
Signature				*Date*	July 29, 2005

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

IN THE U.S. PATENT AND TRADEMARK OFFICE

Appellant:	Hong JIANG
Application No.:	09/349,521
Art Unit:	2666
Filed:	July 8, 1999
Examiner:	Dang T. Ton
For:	AN INTERNET PROTOCOL (IP)-BASED WIRELESS INFRASTRUCTURE NETWORK
Attorney Docket No.:	29250-002166/US

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

MAIL STOP APPEAL BRIEF - PATENTS
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

July 29, 2005

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §41.37
U.S. Application No.: 09/349,521
Atty. Docket: 29250-002166/US

TABLE OF CONTENTS

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

I. REAL PARTY IN INTEREST:

The real party in interest in this appeal is Lucent Technologies Inc. Assignment of the application was submitted to the U.S. Patent and Trademark Office on July 8, 1999, and recorded on the same date at Reel 010091, Frame 0499.

II. RELATED APPEALS AND INTERFERENCES:

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS:

Claims 3-14 are pending in the application, with claims 3 and 8 being written in independent form.

Claims 3-4 and 14 remain finally rejected under 35 U.S.C. §102(e) and claims 5-7, 8-12 and 13 were finally rejected under 35 U.S.C. §103(a). Claims 3-14 are being appealed.

IV. STATUS OF AMENDMENTS:

An Amendment After Final Rejection ("AAF") was filed on July 12, 2005. In an Advisory Action dated July 22, 2005, the Examiner stated the Amendment would not be entered. In addition to appealing the Examiner's patentability rejections, Appellant is also appealing the Examiner's refusal to enter Appellant's AAF.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

This invention relates generally to communications and, more particularly, to wireless communications systems.

As used herein, the phrase "Wireless INfrastructure Network" or WINN refers to the wire-line portion of a wireless network that interconnects base transceiver stations (BTSs), mobile switching centers (MSCs), and base station controllers (BSCs), if any. The architectures of current WINNs have evolved from the AMPS (Advanced Mobile Phone Service) architecture which was formed two decades ago. The architecture considerations for these networks were driven by the need to interwork with the public switched telephone network (PSTN) and the requirements of voice services. For example, there is a hierarchical structure in which all traffic is routed first through an MSC to the PSTN (specification, page 1).

It should be noted that although somewhat similar in hierarchical structure, each WINN is significantly different from the others. For example, each WINN supports a different wireless air interface technology, which couples the mobile units to the BTS. Examples of some wireless air interface technologies are: AMPS, CDMA (code division multiple access), GSM (Global System for Mobile Communications), and the proposed UMTS (Universal Mobile Telecommunications System). In addition, each WINN also has unique signaling protocols, e.g., between a base station and an MSC. Consequently, each WINN needs to be developed and maintained separately.

However, WINNs continue to evolve. Communication between an MSC and a BTS is evolving to a packet-based approach. For example, frame relay pipes can be used to transport voice and data traffic between an MSC and a BTS, Also, ATM (Asynchronous Transfer Mode) is being evaluated for use in transport of wireless traffic. Finally, there is Internet Protocol (IP) based transport (e.g., see the co-pending, commonly assigned, U.S. Patent application of: Chuah et al., entitled "A Lightweight Internet Protocol Encapsulation (LIFE) Scheme For Multimedia Traffic Transport," Application No. 09/264053, filed on March 8, 1999). However, within this evolution

towards a packet-based approach, evidence of the AMPS architecture can still be found (e.g., a hierarchical structure in which all traffic is routed first through an MSC) (specification, pages 1-2).

A new WINN architecture is totally Internet Protocol (IP) based. This WINN architecture comprises a plurality of packet endpoints communicating via IP-based signaling such that an intra-WINN call is established between two mobile endpoints without the use of a mobile switching center. In accordance with the inventive concept, a base station comprises a router and converts wireless air interface signaling into a common EP signaling format.

In an embodiment, a "Wireless INfrastructure Network" endpoints such as servers, routers, base stations and gateways. No mobile switching center (MSC) is required. Communications between these endpoints is Internet Protocol (IP) based and voice communications between base station endpoints occurs directly without use of an MSC. Each base station comprises a router and converts wireless air interface signaling to a common IP signaling format (specification, page 2).

An illustrative new WINK architecture is shown in FIG. 1 (Appendix B). Other than the inventive concept, the elements shown in FIG. 1 are well known and will not be described in detail. Further, it is presumed that the elements described below are suitably programmed to carry out the below-described methods using conventional programming techniques, which, as such, will not be described herein.

WINN 100 comprises a number of packet endpoints, e.g., a plurality of base stations (e.g., 21, 22, 23, and 24), routers (e.g., 15 and 20), and servers (e.g., 5, 10, 25, 35 and 40), all of which are coupled via packet facilities represented by solid lines. In particular, communications between routers, servers and base stations is Internet Protocol (IP) based. WINN 100 is coupled to gateway 30 for communications to and from other networks such as the PSTN, Internet, and/or an Intranet. Gateway 30 (described below) is

responsible for the interworking between WINNs and these other networks (specification, page 3).

It should be realized that the structure of WINN 100 is representative of the inventive concept. For example, base stations 21, 22, 23 and 24 are representative of any number of base stations which provide communications between a packet network and an air interface (as represented by uplink signal 91 and downlink signal 92 from/to mobile station 90). Similarly, each base station has an associated wireless air interface for communicating to, and from, wireless endpoints as represented by mobile stations 80, 90 and 95. In like fashion, routers 20 and 15, along with servers 5, 10, 25, 35 and 40, illustrate that any number of routers and servers can be configured within a WINN architecture in accordance with the inventive concept.

Before describing an illustrative method for establishing a wireless telephone call using the architecture of WINN 100, a number of points should be noted about this architecture.

First, it should be noted that WINN 100 bypasses the use of MSCs (although an MSC (not shown) could be coupled to the network of WINN 100 via a packet interface). As such, and as can be observed from FIG. 1, there is no need to route traffic between base stations via an MSC. In other words, WINN 100 provides direct connectivity between base stations - without an MSC. Consequently, the architecture of WINN 100 is not strictly hierarchical as a conventional WINN network (in which base stations first communicate with MSCs). As described further below, and in accordance with the inventive concept, direct communications at the base station level, or within the base station is allowed. For instance, if a mobile user A (associated with mobile station 95) and a mobile user B (associated with mobile station 90) are both within the coverage area of 10the same base station (as represented by base station 24) and need to communicate then, and in accordance with the

invention, the bearer traffic between mobile user A and a mobile user B occurs within that same base station (here, base station 24). Thus the required network resources including bandwidth and processing power for the call are reduced. Similarly, if mobile user A and a mobile user C (associated with mobile station 80) are within the coverage areas of different base stations (as represented by base station 22 and base station 24), the bearer traffic between mobile user A and mobile user C is routed on the shortest path of WINN 100 just between the base stations (e.g., via base station 23). Most importantly, by not having to go through any MSC for intra-WINN traffic, access charges by the local telephone companies can be avoided (specification, pages 3-4).

Second, WINN 100 unifies the interface to heterogeneous wireless air interfaces (described further below). In other words, under the architecture represented by 100, there is one common WINN. Only the wireless air interfaces will differ, ranging from CDMA, GSM to 802.11. The coupling of different wireless air interfaces to the wired network of WINN 100 is performed by respective base stations. (It should be noted that although WINN 100 has the capability of supporting different wireless air interfaces, the inventive concept does not require the use of different wireless air interfaces, e.g., only CDMA could be used.)

Third, and as can be observed from FIG. 1, in WINN 100 routing (or switching) is separated from various layers of signaling. Routing is performed by routers, e.g., router 15 of FIG. 1. These routers function as in the prior art, i.e., routing IP traffic, and can be viewed as traffic concentrators for outbound traffic. Processing of signaling messages is performed by servers. A set of servers are directly attached to each router (e.g., servers 5, 10, 25, 35 and 40 are coupled to router 15). (It should be noted that it is not necessary in the inventive concept for each router to have a set of servers, or any server for that matter.) Each server provides additional processing capacity for

signaling messages and bearer traffic. For example, server 5 is an Authentication, Authorization and Accounting Server (AAA server) as known in the art. Server 10 is a transcoder server, which converts voice from one vocoder format to another vocoder format. For example, if different vocoders were required in the above described example of mobile user A communicating with mobile user C, then the bearer traffic between mobile user A and mobile user C is routed to transcoder server 10, where vocoder formats are converted.

Server 25 is a mobility management (MM) server, which is used to manage micro mobility of mobile endpoints (e.g., which base station currently serves a particular mobile endpoint). Server 35 is a radio resource server, which manages the resource allocation of air interfaces to the base stations. And, server 40 is an application server, which supports ITU-T H.323 (alternatively, the Session Initiation Protocol (SIP) can be used), and the Real-Time Streaming Protocol (RTSP) from JETF, for providing signaling for call/connection management for multimedia applications and for inter-working with existing networks such as the PSTN. This decoupling of routing from signaling allows 100 to scale well and to introducing new capabilities and applications easily (specification, pages 4-5).

As noted above, WM 100 uses IP-based communications. Illustratively, IP is terminated at the respective base stations of WINN 100, and the existing wireless air interface bearer transport is used between the base stations and the mobile endpoints. (Alternatively, IP can be terminated at the mobile user endpoint. In this case, end-to-end voice-over-IP is implemented and header compression should be used to reduce the packet overhead when using protocols such as RTP (real time protocol), UDP (user datagram protocol) and IP over the narrow air links.) Since WINK 100 uses IP-based communications, gateway 30 is responsible for interworking between WINN 100 and other networks as represented by the PSTN, Internet and Intranet of

FIG. 1. For interworking with the PSTN, gateway 30 converts between H.323 signaling and SS7 signaling and is, essentially, an MSC (in this context, gateway 30 also includes vocoders (not shown) for converting to PSTN-based 64 Kbits/sec. PCM). With respect to IP-based transport, gateway 30 functions as a router.

An illustrative base station 200 for use in WINN 100 is shown in FIG. 2 (Appendix C). Base station 200 comprises wireless air interface 205, processor 210 and, in accordance with the inventive concept IP router 215. Other than the inventive concept, the elements shown in FIG. 2 are well known and will not be described in detail. For example, processor 210 includes stored-program-control processors and memory, and wireless air interface 205 includes appropriate interface cards for interfacing to any of the existing wireless air interfaces, e.g., CDMA industry standard IS-95, for sending communications to, and receiving communications from, a wireless endpoint (e.g., mobile station 90 of FIG. 1). (Although shown as one wireless air interface, a base station may interface to more than one particular air interface. For example, a base station may include interfaces for both AMPS and CDMA at the same time, albeit at a reduced capacity.) As such, it should be noted that the inventive concept does not require changes to existing wireless air interfaces - they are kept intact. In particular, and in accordance with the inventive concept, processor 210 converts all wireless air interface-signaling messages to common IP-based signaling messages. Thus, the use of a particular wireless air interface such as TDMA, COMA and GSM by a base station is transparent to WINN 100. This is illustrated in FIG. 3 (Appendix D), where processor 210 converts between CDMA signaling (received via wireless air interface 205) and H.323 signaling communicated via IP router 215. As can be observed, FIG. 3 shows illustrative protocol stacks for use in base station 200 with respect to the signaling for the wireless air interface and the IP interface (the bearer traffic is not shown). Other than the inventive

concept, these elements are well-known and will not be described herein. For example, PPP is the point-to-point protocol, MAC is the medium access control layer, TCP is the transaction control protocol, etc. (specification, pages 5-6).

In addition, and in accordance with the inventive concept, base station 200 comprises IP router 215 which interfaces base station 200 to the network of WINN 100 for the purpose of communicating with other base stations (e.g., base station 22 of FIG. 1) or other network nodes (such as routers 15 and 20 of FIG. 1). In this example, it is assumed that base station 200 comports with the standard Open Shortest Path First (OSPF) protocol as known in the art. In particular, includes OSPF functionality in base station 200 enables base station 200 to form a routing table (not shown) by passing link and node state control information with other packet endpoints. (Alternatively, other routing protocols may be used such as the Interior Gateway Routing Protocol (IGRP) from Cisco Systems, Inc.)

As such, communications arriving at the base stations from wireless endpoints are formed into packets and routed by the base station. The packets can be routed to an adjacent base station, to a traffic concentrating router, or to any other node in WINN 100, depending on the destination of the packets.

Turning now to FIGS. 4 (Appendix E) and 5 (Appendix F), these figures show an illustrative call setup procedure in accordance with the principles of the invention. (As noted above, the following description assumes that the IP interface is terminated at the respective base station. As such, in the context of this example, each base station handles that part of the IP signaling required by the calling party and the called party. However, if the IP interface is terminated at the mobile endpoint then the below-described call setup is performed by the mobile stations, e.g., as described below, mobile station 80

forms a query to MM server 25 for the IP address of the called party, etc.) (specification, pages 6-7).

FIG. 4 shows a simplified version of the drawing of FIG. 1 for the purposes of illustration. A mobile user C (not shown), associated with mobile station 80, desires to set up a wireless call with a mobile user B (not shown), associated with mobile station 95. As in the prior art, mobile user C simply dials the telephone number a priori associated with mobile user B. (For the purposes of this example, it is assumed that CDMA is the wireless air interface between the mobile station and the base station.) Base station 22 comprises a CDMA interface (which corresponds to wireless air interface 205 of FIG. 2) and, as in the prior art, exchanges signaling messages with mobile station 80. Upon receipt of the called number, base station 22 queries MM server 25 for an associated IP address of mobile station 95. (The base stations learn of the IP addresses of these servers through different mechanisms, as known in the art, e.g., each server can periodically broadcast its IP address to the network.) As noted above, MM server 25 tracks mobile stations and maintains an association between a telephone number and a currently assigned IP address for each mobile station (e.g., see R. Ramjee, T. La Porta, S. Thuel, K. Varadhan, "IP Micro-Mobility support through HAWAII," work in progress, draft-Rmee-micro-mobility-hawaii-OO.txt, March 1999). (It should be noted that if MM Server 25 does not have the associated IP address of the mobile station, MM Server 25 forwards the query as known in the art to another server (not shown) in order to retrieve the IP address.) At this point reference should also be made to FIG. 5, which further illustrates a simple H.323-based call setup method for use between a calling party (represented by mobile station 80) and a called party (represented by mobile station 95). As such, and in accordance with the invention, base station 22 incorporates an H.323 agent (e.g., see FIG. 3). After MM server 25 returns the IP address of mobile station 95, base station 22 establishes a TCP connection

(1) with the called party (again, as noted above, in this example base station 24 handles the IP interface for mobile station 95 (the called party)). In particular, the calling party initiates the call by first making a TCP connection (1) using the well known port for 15 H.323 (port 1720); this connection is used to carry all H.225.0 call signaling messages. After the TCP connection is established, the calling party sends an H.323 setup message (2) to the called party. In reply, the called party sends an H.323 alerting message (3) to the calling party, indicating that the user is being notified of the incoming call. If the user answers the call (at mobile station 95), the called party sends the H.323 connect message (4) to the calling party. As part of this exchange, called and calling parties also send a dynamic port number to be used for the H.245 connection. The two parties then establish the H.245 control channel, begin capability exchange, and open media stream channels for audio, video and/or data. After setting up the H.245 connection, virtually all the protocol activities take place on the H.245 connection. Either party may terminate an 8323 call by sending an H.245 'endsessioncommand' message. An H.323 call is also terminated when the H.245 control/connection is lost. Once the call is established, mobile user C and mobile user B can start talking directly without having to go through an MSC. For example, base station 22 communicates bearer traffic (e.g., voice) associated with the mobile call by transmitting IP packets to base station 24 using the above-mention OSPF 30 routing information. In the context of FIG. 4, bearer traffic is communicated between base station 22 and base station 24 via base station 23 (specification, pages 7-9).

(It should be noted that FIG. 5 represents a simplified call setup procedure. However, in order to perform authorization, admission control and billing, call setup may be performed through the servers, e.g., application server 40, AAA server 5, etc. This would be the case even if the

mobile endpoints are within the coverage area of the same base station in order to ensure collection of billing and traffic statistics.)

For the transport of voice over IP, any one of a number of known protocols can be used. For example, the Real Time Protocol (RTP) (e.g., see H. Schulzrinne, R. Frederick, V. Jacobson, *"RTP: A Transport Protocol for Real-Time Applications,"* RFC 1889), which handles real-time streams. RTP traffic is encapsulated in UDP (user datagram protocol), and IP packets and its efficiency can be improved by use of a multiplexing scheme (e.g., see M. Handley, "GeRM: Generic RTP Multiplexing," work in progress, draft-ietf-avt-germ-00.txt, May 1999). An illustrative portion of a protocol stack, 60, using an RTP-based multiplexing scheme is shown in FIG. 6 (Appendix G) for use in a packet endpoint (e.g., a base station) of WIN 100 of FIG. 1. Traffic is first multiplexed via the RTP Mux layer. RTP traffic is then encapsulated in UDP and IP packets. (It should be noted that other layers (not shown) also exist above and below. For example, below the IP layer sits the media access control (MAC) layer, which is on top of the physical layer, as known in the art.)

However, the above-described approach does not address QoS. For QoS support, the Multi Protocol Label Switching (MPLS), differentiated services and ReSource ReserVation Protocol (RSVP) are available. Alternatively, the co-pending, commonly assigned, U.S. Patent application of Chuah et al., entitled "A Lightweight Internet Protocol Encapsulation (LIPS) Scheme For Multimedia Traffic Transport," Application No. 09/264053, filed on March 8, 1999, describes an alternative packet encapsulation scheme for multiplexing application sessions - Lightweight IP Encapsulation (LIFE), which supports QoS. An illustrative portion of a protocol stack, 70, using LIFE is shown in FIG. 7 (Appendix H) (specification, page 9).

As a result of the above, *WINN 100* allows a wireless service provider to provide low-cost wireless services. This new architecture is also well suited

for markets where there is significant intra-WINN traffic since direct communications is allowed at the base station level, and thus there is no need for every call to go through a central node such as an MSC as in current WINN architectures (specification, pages 9-10).

Appellants respectfully note that the above summary of the invention, including any indication of reference numerals, drawings, figures, paragraphs, page numbers, etc. (collectively referred to as "descriptions" of the application) have been provided solely to comply with the U.S. Patent and Trademark Office's rules concerning the appeal of the claims of the present application. As such, the descriptions above are merely exemplary and should not be construed to limit the claims of the present application in any way whatsoever.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Appellant seeks the Board's review of the rejection of claims 3-4 and 14 under 35 U.S.C. §102(e) and claims 5-7, 8-12 and 13 under 35 U.S.C. §103(a).

VII. ARGUMENTS:

A. The Refusal to Enter the Amendment After Final

In the Advisory Action, the Examiner takes the position that the amendments made to claims 3 and 8 will not be entered because they raise new issues which would require further consideration. Appellant respectfully disagrees.

Prior to the AAF, claims 3 and 8 contained the phrase "is adapted to employ". In Appellant's AAF this phrase was replaced with the term "employs". It strains credulity to believe that such a change requires an additional search or consideration by the Examiner. Appellant respectfully submits that it was the Examiner who asked the Appellant to remove the phrase "is adapted to

employ" and Appellant complied with the Examiner's request. Substantively, this change does not impact the scope of claims 3 and 8 or any other claim.

More to the point, Appellant's AAF should have been entered by the Examiner because: (a) the amendment places the application in condition for allowance; and (b) does not raise any new issues regarding further search and/or consideration; (c) does not present any additional claims without canceling the corresponding number of finally rejected claims; and (d) certainly places the application in better form for appeal.

For all of the above reasons, Appellant respectfully requests the Board of Appeals to reverse the decision of the Examiner and kindly enter the amendments contained in the Appellant's AAF.

Similarly, following paragraphs regarding the Section 102 and 103 rejection of claims will presume that the amendments in Appellant's AAF will, in fact, be entered by the Board.

B. The Section 102 Rejections

Claims 3, 4 and 14 were rejected under 35 U.S.C. §102(e) as being anticipated by Patel et al., U.S. Patent No. 6,314,284 ("Patel"). Appellant respectfully traverses these rejections for at least the following reasons.

The Examiner asserts that the term "adapted to" is not a *positive* claimed limitation, and, therefore, the feature of "at least two different types of wireless air interfaces selected from the group consisting of Advanced Mobile Phone Service (AMPS), Code Division Multiple Access (CDMA), Time Division Multiple Access (TDMA), Global System for Mobile Communications (GSM), 802.11 and Universal Mobile Telecommunications System (UMTS)" has not been given patentable weight. Notwithstanding the fact that Appellant disagrees with the Examiner's position, Appellant has nonetheless amended claim 3 to recite that the "wireless air interface element employs at least two different types of wireless air interfaces." Further, Appellant submits that "all words in a claim

must be considered in judging patentability of that claim against the prior art" (emphasis added). See, for example, In re Wilson, 65 USPQ 494, 496 (CCPA 1970).

Turning to Patel, Patel's base stations only support a single air interface, the Global Systems for Mobile Telecommunications (GSM) (column 5, lines 25-26), rather than supporting at least two different types of wireless air interfaces, as in the claims of the present invention.

Because Patel does not disclose each and every feature of the claimed inventions, it cannot provide a basis for a rejection under 35 U.S.C. §102. Thus, Appellant respectfully requests that the Board reverse the decision of the Examiner and allow claims 3, 4 and 14.

C. The Section 103 Rejections Based on Patel and Siu

Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Patel in view of Siu et al., U. S. Patent No. 6,522,641 ("Siu"). This rejection is respectfully traversed.

Initially, Appellant notes that claim 5 is a dependent claim that eventually depends on claim 3 and is, therefore, patentable over Patel for the reasons set forth above. Further, Appellant submits that claim 5 is patentable over the combination of Patel and Siu because Siu does not cure the deficiencies in Patel.

Siu discloses a fixed wireless point-to-multipoint network in which base stations are connected via IP and/or ATM switches. Siu's base stations only support a single TDMA. Accordingly, it is respectfully submitted that the combination of Patel and Siu does not render claim 5 obvious. Appellant respectfully requests that the Board reverse the decision of the Examiner and allow claim 5.

D. The Section 103 Rejections Based on Patel and Rodrig

Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Patel in view of Rodrig et al., U.S. Patent No. 6,256,314 ("Rodrig"). These rejections are respectfully traversed.

Initially, Appellant notes that claims 6 and 7 are dependent claims that eventually depend on claim 3 and are, therefore, patentable over Patel for the reasons set forth above. Further, Appellant submits that claims 6 and 7 are patentable over the combination of Patel and Rodrig because Rodrig does not cure the deficiencies in Patel.

Rodrig discloses a method of layer 3 forwarding and makes no mention of base stations or wireless air interfaces. Accordingly, it is respectfully submitted that the combination of Patel and Rodrig does not render claims 6 and 7 obvious. Appellant respectfully requests that the Board reverse the decision of the Examiner and allow claims 6 and 7.

E. The Section 103 Rejections Based on Doshi, Patel and Lehman

Claims 8-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi et al., U.S. Patent No. 6,529,499 ("Doshi") in view of Patel and Lehman et al., U.S. Patent No. 6,282,184 ("Lehman"). These rejections are respectfully traversed.

Claim 8 includes the feature of "at least one base station for communicating information between a wireless endpoint and an Internet Protocol (IP) based packet network, said at least one base station employs at least two different types of wireless air interfaces selected from the group consisting of Advanced Mobile Phone Service (AMPS), Code Division Multiple Access (CDMA), Time Division Multiple Access (TDMA), Global System for Mobile Communications (GSM), 802.11 and Universal Mobile Telecommunications System (UMTS)."

Doshi fails to disclose at least one base station for communicating information between a wireless endpoint and an Internet Protocol based packet network.

The Examiner asserts that box 250 in Doshi is a base station. However, box 250 in Figure 1 is a signaling gateway, and not a base station as asserted by the Examiner. The gateway 250 is used to facilitate conversions and signaling mechanisms between public switch telephone networks and IP networks, as stated in column 3, lines 21-24. As known by those skilled in the art, base stations are utilized in wireless networks to communicate signaling and information content (e.g., conversations) over an air interface, and couple the received signaling and information content to nodes in a wireless network. Because the signaling gateway disclosed in Doshi does not receive information content over an air interface and does not communicate information between a wireless endpoint and an Internet Protocol (IP) based packet network, it cannot be considered a base station.

Further, Appellant submits that claim 8 is patentable over the combination of Doshi, Patel and Lehman because Patel and Lehman do not cure the deficiencies in Doshi.

Patel discloses base stations supporting only a single air interface, the Global System for Mobile telecommunication (GSM) instead of supporting at least two different types of wireless air interfaces, as recited in claim 8.

Lehman is silent with respect to at least one server, accessed by the base station and at least one router coupled to the IP based packet network, for communications transmitted from the base station to the server.

In view of the foregoing, claim 8 is believed to be allowable over the proposed combination of Doshi, Patel and Lehman. Claims 9-12 are also believed to be allowable by virtue of their dependency on independent claim 8.

Appellant respectfully requests that the Board reverse the decision of the Examiner and allow claims 8-12.

F. The Section 103 Rejections Based on Doshi, Patel and Siu

Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Patel and Lehman, and further in view of Siu. The rejection is respectfully traversed.

Initially, Appellant notes that claim 13 is a dependent claim that eventually depends on claim 8 and is, therefore, patentable over Doshi in view of Patel and Lehman for the reasons set forth above. Further, Appellant submits that claim 13 is patentable over the combination of Doshi, Patel, Lehman and Siu because Siu does not cure the deficiencies in Patel.

Siu discloses a single, TDMA wireless air interface instead of at least two as required by claim 13. Accordingly, the combination of Doshi, Patel, Lehman and Siu does not teach or suggest all of the limitations in Appellant's claim 13, and therefore claim 13 is allowable over the proposed combination.

Appellant respectfully requests that the Board reverse the decision of the Examiner and allow claim 13.

VIII. CONCLUSION:

Appellants respectfully request the Board to reverse the Examiner's rejection of claims 3-14.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By: _____

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APPENDIX A

CLAIMS APPENDIX

Claims 3-14 on Appeal:

1. (Canceled)

2. (Canceled)

3. (Previously Presented) A base station for use in a wireless network, the base station comprising:

a wireless air interface element for communicating with a wireless endpoint;

an Internet Protocol (LP) router for routing packets over an IP-based network; and

a processor for converting signaling messages received from the wireless air interface element to a common signaling format for transmission via the IP router,

wherein the wireless air interface element yes is adapted to employ at least two different types of wireless air interfaces selected from the group consisting of Advanced Mobile Phone Service (AMPS), Code Division Multiple Access (CDMA), Time Division Multiple Access (TDIVIA), Global System for Mobile Communications (GSM), 802.11 and Universal Mobile Telecommunications System (UMTS).

4. (Previously Presented) The base station of claim 3 wherein the IP router queries the IP-based network for forming a routing table for use in routing packets from other packet endpoints of the IP-based network.

5. (Original) The base station of claim 4 wherein the IP router routes packets from one base station to another base station.

6. (Original) The base station of claim 4 wherein the IP router uses an Open Shortest Path First (OSPF) based protocol for forming the routing table.

7. (Original) The base station of claim 4 wherein the IP router uses an Interior Gateway Routing Protocol (IGRP) based protocol for forming the routing table.

8. (Previously Presented) A wireless infrastructure network comprising:

at least one base station for communicating information between a wireless endpoint and an Internet Protocol (IP) based packet network, said at least one base station being operable to employ at least two different types of wireless air interfaces selected from the group consisting of Advanced Mobile Phone Service (AMPS), Code Division Multiple Access (CDMA), Time Division Multiple Access (TDMA). Global System for Mobile Communications (GSM), 802.11 and Universal Mobile Telecommunications System (UMTS);

at least one server, which is accessed by the base station for establishing a telephone call between the wireless endpoint and another endpoint; and

at least one router, coupled to the IP based packet network, for routing communications transmitted from the base station to the server;

wherein the wireless infrastructure network does not include a mobile switching center (MSC).

9. (Original) The wireless infrastructure network of claim 8 wherein the base station comprises a router portion for routing packets through the base station to other portions of the IP based packet network.

10. (Original) The wireless infrastructure network of claim 8 further comprising a gateway server for coupling to a switched network.

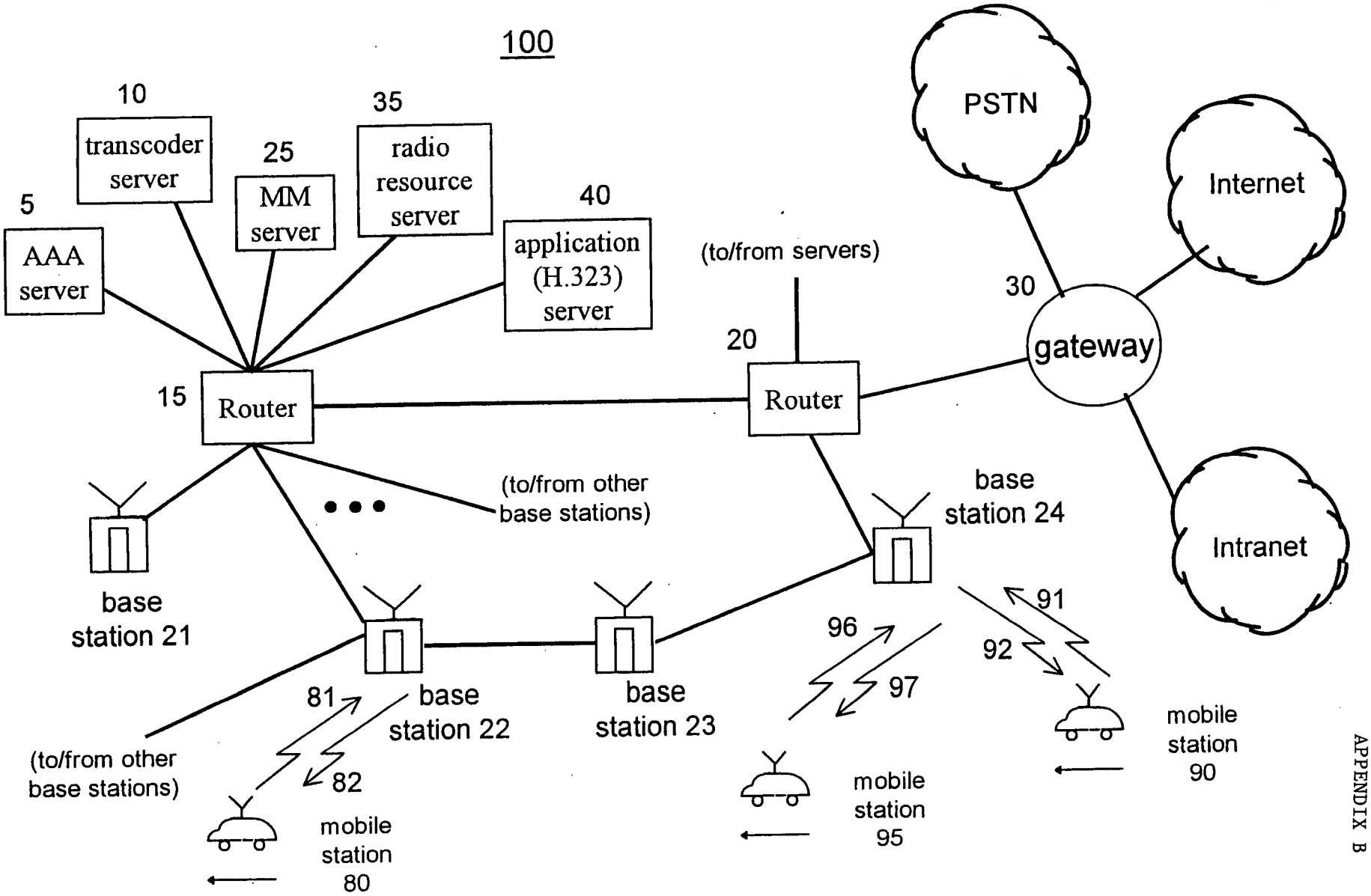
11. (Original) The wireless infrastructure network of claim 8 further comprising a gateway server for coupling to another IP-based network.

12. (Original) The wireless infrastructure network of claim 11 wherein the gateway provides Internet access.

13. (Original) The wireless infrastructure network of claim 11 wherein the gateway provides access to an intranet.

14. (Previously Presented) The base station of claim 3, wherein the common signaling format is ITU H.323.

FIG. 1



APPENDIX B

FIG. 2

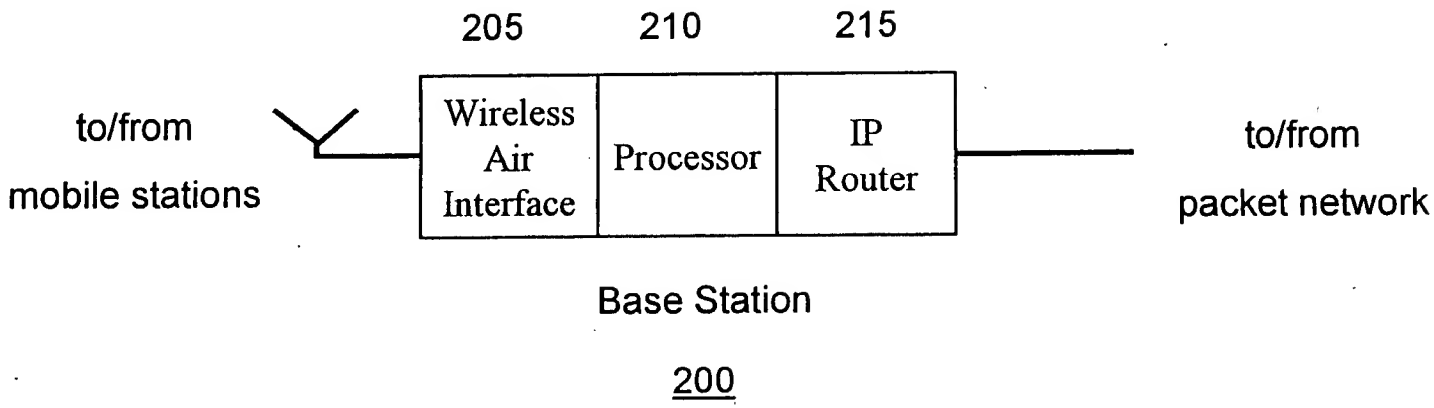
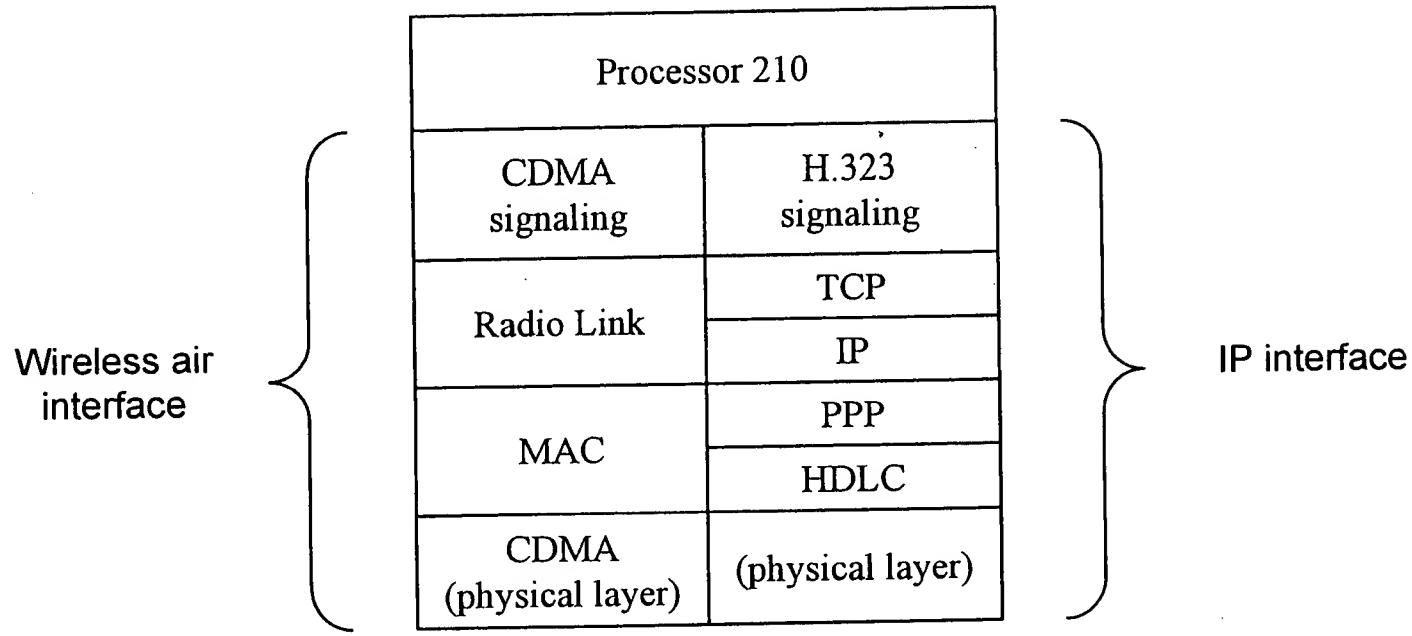


FIG. 3



Base Station

200

FIG. 4

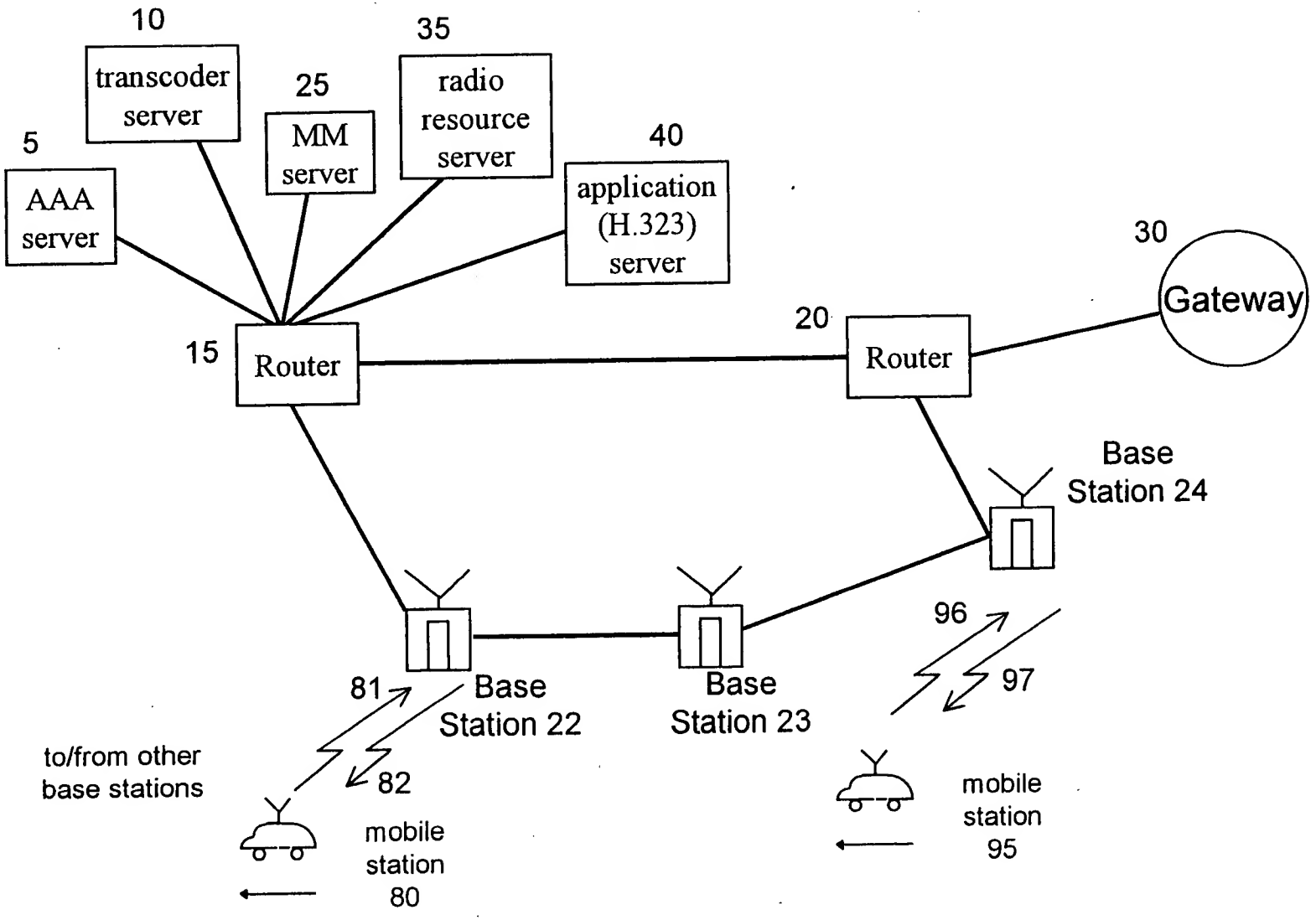


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FIG. 5

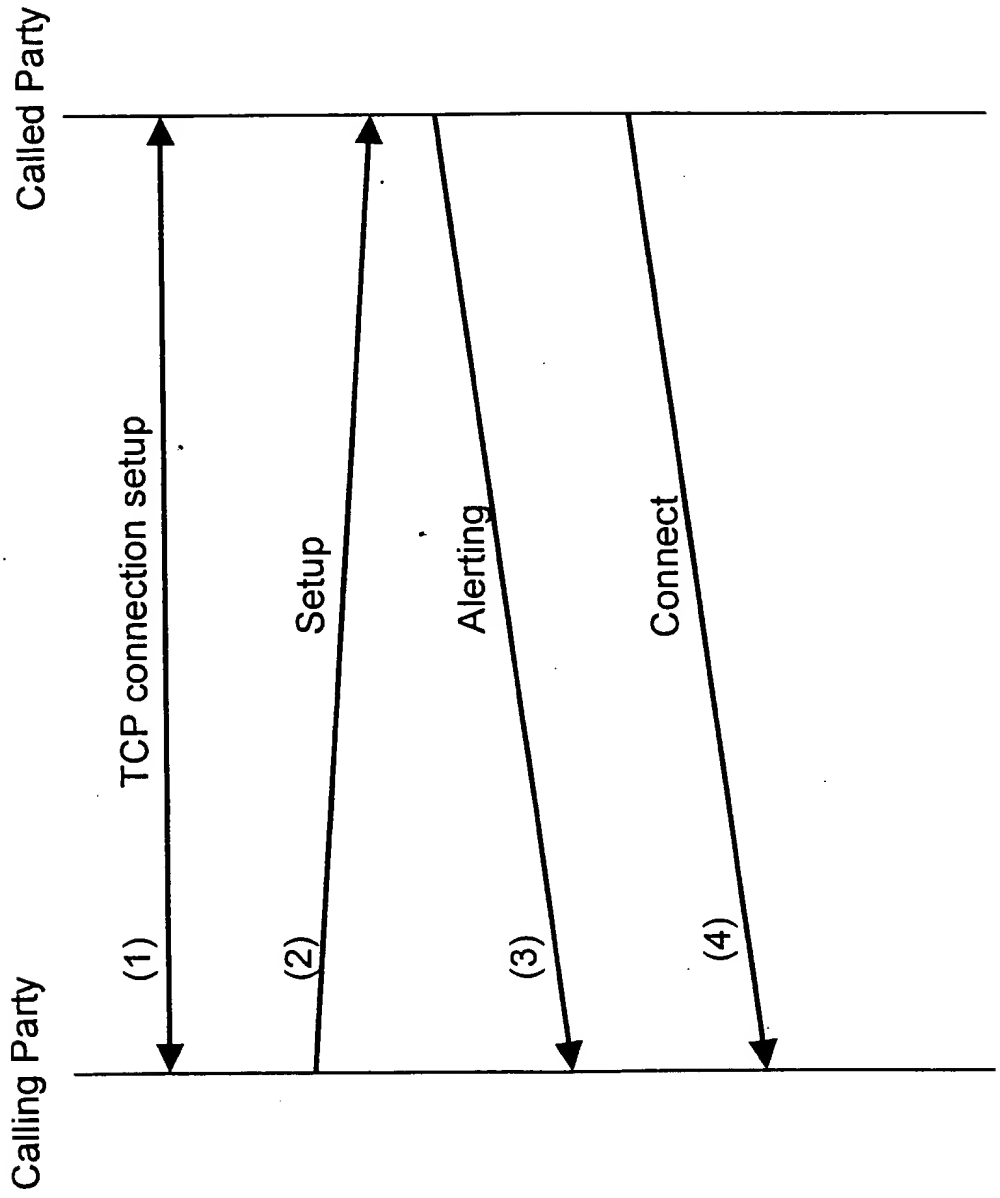

FIG. 6

Prior Art

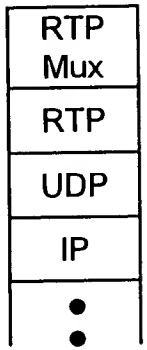

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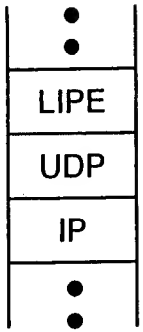
FIG. 7



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